UNITED STATES PATENT AND TRADEMARK OFFICE

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10/632,499	08/01/2003	Frank Olschewski	21295.59(H5644US)	4405

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ROSARIO, DENNIS

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _09 April 2010_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _10 July 2007_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

4/9/2010 has been entered. Claims 1-11 are pending.

Response to Arguments

2.   Applicant's arguments filed 4/9/10 have been fully considered but they are not

persuasive.

In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., "identifying their [pixel's] actual trajectories" and "trajectories of all pixels are

known") are not recited in the rejected claim(s). Although the claims are interpreted in

light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants state that identifying a trajectory for each pixel of the acquired images

from and applying an operation along the trajectory is not disclosed in Sezan.

The examiner respectfully disagrees since Sezan discloses identifying a

trajectory ("assumed trajectory" in col. 13, lines 63-64) for each pixel ("missing pixel"

ibid. that implies a replacement pixel for the missing pixel via interpolation) of the

acquired images ("even field images" in col. 9, lines 53-57) from (an assumption) and

applying an operation ("spatial interpolation" in col. 13, lines 18-20) along the trajectory

(implied by "the missing pixel at location a is determined by spatial interpolation" ibid.)

Note that applicants are implying, among other things, identifying a pixel and

finding that pixel's trajectory that corresponds to the identifying limitation that is broadly

interpreted. Thus, more specific claim language is suggested:

"identifying each pixel's trajectory from the displacement vector fields of the acquired

images"

Note that Sezan teaches an assumed trajectory; thus, the trajectory was not

actually measured or determined, and the assumed trajectory somehow appears within

an image with vector fields as show in fig. 12A;thus, the assumed trajectory is

reasonably "from" as claimed someone's assumption and not from the claimed

displacement vector fields.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

4.   Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Claim 11 claims a computer-readable medium.

However, in reference to the specification, the specification appears silent. Thus, under

the broadest interpretation, the computer-readable medium includes non-statutory

subject matter.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6.   Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 11 claims a computer-readable medium. However, computer readable medium was not presented in the original specification and claims. Thus, one of ordinary skill in the art does not know what the computer readable medium is.

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8.   Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 states "identifying a trajectory for each pixel of the acquired images from the displacement vector fields" that has multiple interpretations. The first interpretation, which the examiner is using for prior art purposes, has the claimed trajectory from the displacement vector fields. The second has the acquired images from the displacement vector fields. The third has each pixel from the displacement vector fields. Thus, the

above limitation does not clearly claim what is coming from the displacement vector

fields. Please clarify.

Thus, claims 2-11 are rejected for the same reasons as claim 1.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 1,2,7,8 and 11 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Sezan et al. (US Patent 5,682,205) in view of Ma (US Patent

7,072,398 B2).

Regarding claim 1, Sezan teaches a method for optimizing the image quality of

movable subjects imaged with a microscope system, comprising the following steps:

a)   optically acquiring images (implied by "camera" in col. 4, lines 31,32 which

would include structures such as a lens which corresponds to the claimed optically) by a

detector unit (said camera), each image having a plurality of pixels (indicated in fig. 2:

"MISSING LINE OF PIXELS");

b)   determining a respective displacement vector field (fig. 12A:E1) from a

comparison ("compared" in col. 10, lines 9-15) of the pixels of each two chronologically

successive acquired images (as shown in fig. 2);

c)   identifying a trajectory ("motion trajectory...i.e., the velocity" in col. 12,

lines 48-51 and "assumed motion trajectory" in col. 13, lines 63-65) for each pixel

(intended use) of the acquired images (must be present) from (an assumption of trajectory) the displacement vector fields (said E1 and E2 as shown in fig. 12C are not the source of the trajectory; thus, the trajectory is not from E1 and E2); and

d)   applying an operation ("This operation" in col. 13, lines 63-65) to the images optically acquired by the detector unit along the identified trajectory (not taught since the assumed trajectory is not from the fields),

e)   wherein the acquired images are not subjected to compression or decompression during the applying of the operation (given that Sezan does not mention compression, Sezan's images of E1 and E2 are reasonably not subject to compression).

Ma teaches "Extracting Motion Trajectories" in col. 10, lines 41,42 using a vector field via "Motion-vector field denoising" in col. 10, lines 43-47. Thus, the extracted motion trajectories reasonably come from the vector field that corresponds to the claimed displacement vector fields.

Sezan does not teach that the trajectory comes from the displacement vector fields.

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference.

In combination, Ma performs the same function as it does separately of extracting a trajectory from vector fields and Sezan performs the same function as it does separately of using the assumed trajectory.

Therefore one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately.

The result of the combination would have been predictable since Sezan's trajectory combined with Ma's trajectory would reasonably not alter the function of Sezan's assumption of trajectory and resulted in modifying the invention of Sezan's trajectory with Ma's trajectory that is an "important key feature to digital video" in col. 3, lines 21-23.

Regarding claim 2 Sezan teaches the method as defined in Claim 1, wherein the operation along the identified trajectory is a deconvolution, a smoothing, an averaging filter, or an operation acting in time-lateral fashion (as shown in fig. 12C as E1 and E2 that correspond to "two time sequential fields" in col. 1, lines 28-30).

Claim 7 is rejected the same as claim 1. Thus, argument presented in claim 1 is equally applicable to claim 7.

Claim 8 is rejected the same as claim 2. Thus, argument presented in claim 2 is equally applicable to claim 8.

Regarding claim 11, Sezan discloses a computer-usable software (or "image processing application software executable" in col. 8, lines 27-37) on a computer-readable medium (implied by the executable and "processor" ibid), wherein the software causes a microscope system to carry out a method as defined in one of Claims 1 through 6.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sezan et al. (US Patent 5,682,205) in view of Ma (US Patent 7,072,398 B2), as applied

to claims 1,2,7,8 and 11 above, further in view of Bouguet et al. (US Patent Application

Publication No.: US 2003/0012408 A1).

Regarding claim 3, Sezan teaches the method as defined in Claim 1, wherein

a)   the images (said E1 and E2) optically acquired by the detector unit (said

camera) are conveyed to an image memory (implied by "field stores" in col. 4, lines 53-

58); and

b)   data (fig. 12C:E1) obtained from the images optically acquired by the

detector unit (said camera) is conveyed to an optical flow calculator to a trajectory

tracker, and to a trajectory memory (E1 is not clearly conveyed to the optical flow

calculator and trajectory tracker and trajectory memory).

Sezan does not teach data obtained from the images optically acquired by the

detector unit is conveyed to an optical flow calculator to a trajectory tracker, and to a

trajectory memory.

Further regarding claim 3,Bouguet teaches

a)   the images optically acquired by the detector unit are conveyed to an

image memory (fig. 1, 104,106,107 and 126); and

b)   data obtained from the images optically acquired by the detector unit is

conveyed to an optical flow calculator (implied by "optical flow tracking techniques" in

paragraph [0066], 2nd sentence) to a trajectory tracker (fig. 2:204 that is used to "obtain

a...trajectory" in [0028, last sentence), and to a trajectory memory (fig. 2:208 stores a

trajectory as discussed in [0059]).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Sezan's teaching of E1 of a video frame with Bouguet's

video frames of fig. 3 and creating and saving of the trajectory of fig. 2:210, because

Bouguet's fig. 2:210 provides a further application of video, other than providing a clean

video signal of Sezan, that provides better communication for a "video conference

system" in [0002], 2nd sentence by "reduc[ing[" in [0002], 3rd sentence data to be

processed.

Regarding claim 4, Sezan teaches the method as defined in Claim 3, wherein for

the application of the operation (said interpolation), the images (said E1 and E2)

optically acquired by the detector unit (said camera) are retrieved from the image

memory (fig. 6:61,62 and 63) and corresponding trajectory data (Sezan does not clearly

teach trajectory data, instead Sezan makes an assumption that the trajectory is

constant camera motion and superposes vectors in fig. 12A on the assumed trajectory

and fig. 12C: "e" is described as a pixel that "lies on" in col. 13, lines 63-65 the assumed

trajectory; thus, "e" is the claimed trajectory data since a pixel can lie on anything to

represent anything so "e" represents a portion of the assumed trajectory) is retrieved

from the trajectory memory (fig. 6:63 is under the assumption of having the constant

global trajectory) in a correlated way (via the other memories of fig. 6:61 and 62 that when related with each other can compute the vector "gdy" of fig. 12(c)).

13. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sezan et al. (US Patent 5,682,205) in view of Ma (US Patent 7,072,398 B2), as applied to claims 1,2,7,8 and 11 above, further in view of Bouguet et al. (US Patent Application Publication No.: US 2003/0012408 A1) as applied to claims 3 and 4 above, further in view of Powers (US Patent 4,400,719).

Regarding claim 5, Sezan teaches the method as defined in Claim 4, wherein the data generated (via the interpolation) by application of the operation (interpolation) is conveyed (to be displayed) to a second image memory (not clear if the interpolated data is conveyed to the second memory).

Sezan does not teach the data generated is conveyed to a second image memory.

Further regarding claim 5, Powers the method as defined in Claim 4, wherein the data generated by application of the operation is conveyed (Powers does not teach this limitation) to a second image memory (fig. 3:22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sezan's display of an interpolated image with Power's interpolated image of fig. 3:INTERPOLATOR with the memory of fig. 3:22 so a person can see the result.

Claim 9 is rejected the same as claims 3,4 and 5. Thus, argument presented in claims 3,4 and 5 is equally applicable to claim 9.

14.   Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sezan et al. (US Patent 5,682,205) in view of Ma (US Patent 7,072,398 B2), as applied

to claims 1,2,7,8 and 11 above, further in view of Walton (US Patent 3,967,054).

Regarding claim 6, Sezan teaches the method as defined in Claim 1, wherein the

microscope system (fig. 6) contains a scanning microscope or a conventional

microscope (not clear if fig. 6 contains the microscopes).

Sezan does not teach the microscopes.

Further regarding claim 6, Walton teaches a "television microscope system" in

col. 3, lines 10-12.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Sezan's fig. 6 with Waltons system as shown in fig. 1,

because Walton can obtain desired measurements that are used for "quality control" in

col. 3, lines 36-38.

Claim 10 is rejected the same as claim 6. Thus, argument presented in claim 6 is

equally applicable to claim 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DENNIS ROSARIO whose telephone number is

(571)272-7397. The examiner can normally be reached on 9-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Bella can be reached on (571)272-7778. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Rosario/
Examiner
Art Unit 2624